

When harmful substances enter the environment, fish, wildlife, and other natural resources are often injured. The Department of the Interior, along with State, Tribal and other Federal Partners, act as “trustees” for these resources.

Trustees seek to identify the natural resources injured and determine the extent of the injuries, to recover damages from the polluters, and to plan and carry out natural resource restoration activities. These efforts are possible under the Natural Resource Damage Assessment and Restoration Program, whose goal is to restore natural resources lost to contamination. The Department, along with other trustees, is accomplishing this goal at the Bennington Landfill in southwestern Vermont, bringing a cleaner, healthier environment to the people of the area.

Forested Wetlands

Like many areas of New England, southwestern Vermont is home to numerous types of wetlands, such as forested swamps, marshes and bogs. These areas provide abundant food, water and cover for fish and wildlife and are used as nesting habitat for resident and migratory birds. A unique type of wetland often associated with forested swamps is the “vernal” pool. Vernal pools are shallow wetlands that are generally wet during the winter and spring, but may be completely dry for most of the summer and fall. These pools provide essential breeding habitat for many species of salamanders and frogs. However, because these pools tend to be small and are often dry during the construction season, they are particularly vulnerable to development. The Bennington Landfill restoration project has provided an opportunity to restore and protect vernal pool habitat and other forested wetlands in Vermont.

Restoring Our Resources

Vermont’s Bennington Landfill



The Problem

Located in rural southwestern Vermont, the Bennington Landfill was initially a site for sand and gravel excavation. In June 1969, the landfill began receiving residential, commercial, and industrial wastes. These wastes included highly toxic substances, such as paint thinner, inks, glues, solvents, and scrapped capacitors containing polychlorinated biphenyls (PCBs). Liquid wastes were dumped into an unlined pit until 1975, when this “buried lagoon” was filled and covered with landfill material. Between 1974 and 1986, sampling by the Town of Bennington

and State and Federal agencies revealed elevated levels of PCBs in groundwater seeps. Subsequent discovery of harmful concentrations of PCBs, volatile organic compounds (VOCs), and metals in sediments and surface waters in wetlands adjacent to the site contributed to the Environmental Protection Agency’s 1989 designation of the landfill as a Superfund site.

Injured Trust Resources

Migratory birds that inhabit the wetland and upland communities surrounding the landfill were harmed by contamination from the landfill. Research demonstrated that elevated concentrations of PCBs and metals had reduced the biological diversity and productivity of the habitat and contaminated the food supply for the migratory birds. Animals have difficulty metabolizing or excreting PCBs, so concentrations of the pollutant build up in their



Debris and chemical wastes contaminated wetlands adjacent to the Bennington Landfill.
Photo by Environmental Protection Agency.

tissues and internal organs. This process is referred to as bioaccumulation. The PCBs then become more and more concentrated in animals as the pollutant works its way up the food chain in a process known as biomagnification. Biomagnification poses a significant threat to birds and mammals since these animals are very high on the food chain. PCB poisoning in birds has been shown to cause increased disease rates, beak deformities, reproductive impairments, coordination problems, and tremors.

Restoring the Resources

After determining that the landfill had contaminated surrounding wetlands used by migratory birds, the U.S. Fish and Wildlife Service and the State of Vermont worked together to negotiate a natural resource damage settlement with the responsible party, the Town of Bennington. As part of the settlement, the town agreed to protect and restore wildlife habitat. Bennington obtained a conservation easement to permanently protect 14 acres of uncontaminated forested wetland habitat, including numerous woodland pools. Natural hydrologic conditions on the property were restored by removing an antiquated water collection system consisting of concrete cisterns and underground pipes. A "citizen committee" oversaw the restoration work, created trails and interpretive signs, and helped local schools



Habitat for common yellowthroats (above), and other migratory birds, including thrushes, wrens, sparrows, warblers, and herons, was degraded by contaminants from the Bennington Landfill. Photo by Larry Parsons/Corel Corp.



An antiquated cistern alters natural hydrologic conditions and provides limited access to wildlife prior to restoration. Photo by U.S. Fish and Wildlife Service.



After the cistern's removal, the natural hydrology of this woodland pool is restored and access to wildlife is improved. Photo by U.S. Fish and Wildlife Service.

integrate the restoration activities into their biological and social science curriculums. As a result of these efforts, high quality wetland wildlife habitat has been created and recreational and educational opportunities have improved.

A Partnership for Success

This restoration effort quickly developed into a strong partnership between the Town of Bennington and the Fish and Wildlife Service, resulting in efficient project implementation and enthusiastic local support. Less than four months after the restoration agreement was reached, the town mobilized its employees to conduct restoration activities, thereby reducing costs and providing the town an opportunity to actively

participate in the restoration process. The citizen committee's participation also played an important role in the project's success. The Town Manager commented that the project had been transformed from a significant financial burden on the townspeople to something that will benefit the entire community by providing an outdoor sanctuary for everyone's personal enjoyment.

For more information, contact: U.S. Fish and Wildlife Service, New England Field Office, 22 Bridge Street, Unit #1, Concord, NH 03301-4901; (603) 225-1411. Also, visit the USFWS's web site <http://www.fws.gov>.

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